be performed safely with excellent results and acceptable complication rates.

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Accuracy of sacroiliac screws insertion using fluoroscopy: An experimental study comparing two (inlet/outlet) versus three (inlet/outlet/lateral) views

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Hypothesis: Percutaneous insertion of sacroiliac screws for stabilization of the posterior elements of the disrupted pelvic ring is often associated with a high rate of screw misplacement. Insertion of the screws is usually performed with fluoroscopic guidance using either two (inlet/outlet) or three (inlet/outlet/lateral) views. The aim of this study therefore was to evaluate and compare the accuracy and safety of this demanding procedure using either two or three views in a plastic pelvic model.

Materials: In a simulated surgical procedure, 26 covered plastic pelvic models were used for the insertion of 104 cannulated screws in the S1 and S2 vertebral bodies, using a 2.8 guide wire and a 5 mm cannulated drill. The placement of the screws was controlled with a conventional image intensifier using either three views for the right side S1 and S2 bodies (total of 52) and three views for the left, respectively. The time of exposure to radiation was recorded. All the screws were inserted by the Senior Author. After the screw insertions, each pelvis was inspected for screw perforation, and after screw removal, it was cut in the midsaggital and transforaminal plane for accurate evaluation of the position of the screw in the safe anatomical zone. Any deviations were documented and analysed.

Results: The mean radiation exposure time for the S1 screw placement was 14 ± 5.6 s when three views were used compared with 18.6 ± 8.3 s with the usage of two views, ($p = 0.03$). The mean exposure time for S2 screw placement was 12.2 ± 10 using three views and 16.1 ± 12 s for two views respectively (not statistically significant ($p = 0.2$). There were not statistically significant differences in the position of the screw (in terms of distance deviation) in the midsaggital and transforaminal plane from the various anatomical landmarks measured, using two or three views. There were in total 13 screw perforations (6/26 S1 screws and 7/26 S2 screws) when three views were used versus 20 (7 and 13, respectively) using two views. There was no screw perforation in the canal when the S1 screw was placed either with two or three views (there were however three cases of foramina perforations), whereas with the S2 screw placement, there were 5/52 canal perforations and 10/52 perforations of the foramina (7 with 2 views and 3 with 3 views), ($p = 0.08$).

Conclusion: There was a statistically significant reduced radiation exposure time for the S1 body screw insertion when three views were used compared with the two views method. There was a higher screw perforation rate of the S2 body using the two views. This study supports the view that fluoroscopic sacroiliac screw insertion should be performed using the three views method.

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Two level reconstruction of comminuted posterior wall acetabular fractures

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Purpose: Posterior wall fractures of the acetabulum associated with fragmentation are challenging cases and often difficulties are encountered intraoperatively to maintain reduction of the fragments until solid union takes place. The purpose of this study was to evaluate the efficacy of the two level reconstruction technique using 1.5 mm or 2 mm mini screws for the stabilization of comminuted posterior wall acetabular fractures.

Methods: Between January 1995 and January 2004, 29 (26 males) patients with comminuted posterior wall acetabulum fractures were treated and prospectively followed up in our institutions. There were five (17.2%) cases of associated sciatic nerve injuries. In 27/29 patients there was a posterior fracture dislocation. All the dislocations except two were reduced within 6 h from injury. Seventeen patients had sustained other associated injuries, median ISS 10 (range 9—18). All patients underwent CT scanning prior, after surgery, and at 3 months follow up to evaluate the accuracy of reduction. The Kocher—Langebeck approach was used in all cases.

The operative procedure involved reduction and stable fixation of the fragments with the appropriate number of 2 mm mini screws inserted internally sparing the articular cartilage. Subsequently, the big posterior wall fragment was stabilised with 3.5 mm lag screws (wall to column) and neutralization of the whole construct using either reconstruction (AO) or Matta plates. Postoperative, all patients were mobilising toe touch weight bearing and all